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ABSTRACT

An Associate Degree Nursing program was created and implemented in Del Rio, Texas, by Howard Junior College of Big Spring, Texas. The program was conducted via videotaped lectures that were televised simultaneously on both campuses. Opportunities were then available for students to ask questions of instructors through a teleconferencing system. Students on the Del Rio campus were provided with duplicates of all materials given to main campus students. In addition, library facilities for the nursing program were duplicated on the distant campus. Some courses, such as psychiatric nursing, were conducted jointly for students from both campuses. Evaluation of the program using the Watson-Glaser test and the National League of Nursing achievement tests showed no significant differences in test scores between students from the distant campus and the home campus, and showed less attrition among students at the distant campus. Based on the success of the first year of the program, Howard College planned to open another distance program in Snyder, Texas, in 1983. (KC)

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"INNOVATIVE ASSOCIATE DEGREE NURSING PROGRAM— REMOTE AREA"

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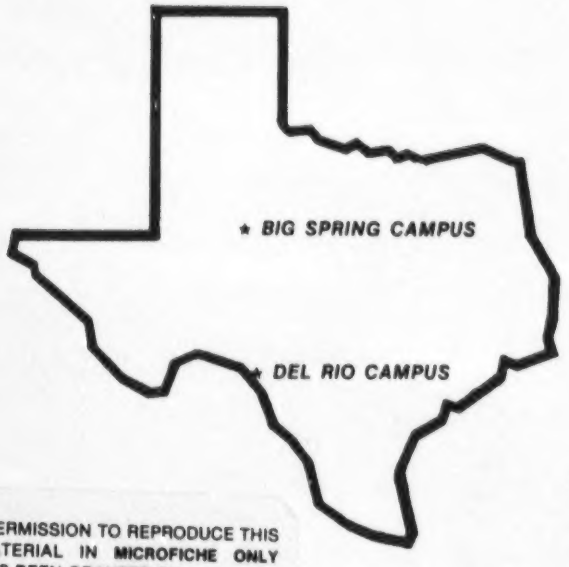

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HOWARD COUNTY JUNIOR COLLEGE DISTRICT
BIG SPRING, TEXAS

1983

A COMPREHENSIVE FINAL REPORT

ON

EXEMPLARY AND INNOVATIVE PROPOSAL

INNOVATIVE
ASSOCIATE DEGREE NURSING PROGRAM
REMOTE AREA

PREPARED FOR:

RESEARCH COORDINATING UNIT
DEPARTMENT OF OCCUPATIONAL EDUCATION AND TECHNOLOGY
TEXAS EDUCATION AGENCY
AUSTIN, TEXAS 78701

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INNOVATIVE ASSOCIATE DEGREE
NURSING PROGRAM - REMOTE AREA

Project Need

Del Rio, Texas, located on the Texas-Mexico border in the middle Rio Grande area, serves as the center of health care services for a rural population of approximately 100,000 people. The need for registered nurses in this service area was supported by data from a health needs survey. This survey, conducted by the Middle Rio Grande Development Council in 1976, confirmed the acute shortage of Registered Nurses for health care facilities in Del Rio. The city of Del Rio and the surrounding area is rapidly increasing in population and consequently will require an even larger staff of Registered Nurses to provide health care services.

Therefore, the purpose of the extended campus is:

(1) To provide educational opportunities in an Associate Degree Nursing Program to students in the Del Rio area, who, for a variety of reasons, are not able to leave the area for such education.

(2) To, thereby, increase the available nursing manpower

in the Middle Rio Grande area.

Project Objectives

After determining the need in implementing a project designed to provide educational opportunities and increase nursing manpower, the objectives were outlined and stated as follows:

(1) Develop a mechanism for providing the basic nursing courses simultaneously on the home campus and at the remote site.

(2) Identify important factors that make it possible for students participating in an extended campus arrangement to be motivated and successful.

(3) Identify the potential for communication problems between the main campus and the extended campus.

(4) Utilize appropriate community health care agencies for assistance in providing students with adequate clinical experiences.

(5) Examine the critical importance of negotiation/compromise, and alternative plans between the two campuses to ensure continued success.

Procedures Used To Accomplish Objectives

The procedures developed to complete the stated objectives were implemented as follows:

(1) Develop a mechanism for providing the basic nursing courses simultaneously on the home campus and at the

remote site.

The goal of providing a high quality educational program with the distances involved was accomplished by utilizing a combination of audiovisual cassette lectures and teleconferencing. Additionally, instructors on the Del Rio campus were provided with outlines of all major and supplemental lectures.

Filming of the major lectures "live" in the Big Spring classrooms was initiated during the fall of 1981, one year prior to the actual admission of students on the Del Rio campus. The following time element was adhered to and essential in order to complete editing of the raw footage and the subsequent "dubbing" to a Sony ½" beta format, the finished product:

Filming Schedule

Fall Semester 1981 - Fundamentals of Nursing

Spring Semester 1983 - Medical-Surgical Nursing I

Summer Semester 1982 - Obstetrical Nursing

Fall Semester 1983 - Psychiatric Nursing and Pediatric Nursing

Spring Semester 1983 - Medical-Surgical Nursing II

Lectures were filmed with a Sony 1800 minicam using a portable recorder that operated with twenty minute 3/4" Sony video tapes. In the editing process, the twenty minute 3/4" cassettes were placed on a one hour master tape. Prior to editing to the ½" tape, mistakes were edited out and

graphics were edited in. Graphics included outlines, book inserts, and other materials to clarify lectures. In order to accomplish tape to tape editing, two monitors were required. A "Character Generator" was utilized in creating some of the inserts. These procedures produced a final product of broadcast quality ensuring a high quality educational program.

In addition to the editing process, we experimented with various introductions and also added music. The intent of these additions was to avoid monotony or sameness of lectures. Additionally, the introductions provided the students with a visual presentation of the main campus in Big Spring. This contributed to their identity with Howard College.

Students on the Del Rio campus view the major audiovisual cassette lectures on a 50" television screen placed in the classroom. Immediately following the lectures, which are presented simultaneously on both campuses, students use the teleconference system between campuses to ask questions and clarify lecture material. Students on the Del Rio campus have the opportunity to ask questions of the faculty on the Big Spring campus who actually delivered the lecture via audiovisual cassette.

To further ensure continuity of content on both campuses, students are provided with identical lecture outlines, simulated and clinical laboratory experiences, tests, and

textbcoks. Two masters prepared nursing instructors supplement the major lectures, staff the simulated learning lab, and arrange all clinical components of the nursing program.

(2) Identify important factors that make it possible for students participating in an extended campus arrangement to be motivated and successful.

Communication and identity with the main campus were cited as essential factors for motivation and success. Identity was also an essential element for Del Rio faculty as they were responsible for motivation of the students on a daily basis.

To further facilitate identity and communication between campuses, weekly faculty conferences are scheduled each Monday at a specified time. The agenda addresses concerns of faculty on both campuses. For example, Self-Study, in preparation for the National League for Nursing re-accreditation visit was a shared endeavor via the teleconference network.

In addition to the communication via the teleconference system, the director travels to the Del Rio campus at least monthly. Trips were scheduled more frequently during initial implementation.

Del Rio students are eligible for student services including financial aid and counseling and guidance services.

Howard College representatives from the various student services also make trips to the Del Rio campus so that students can avail themselves of these services.

The library on the Del Rio campus must also be identified as a contributing factor to the motivation and success of the students. The library is contained in the building specifically designed to house the nursing program. Reference textbooks and other audiovisual teaching aids have been duplicated on the Del Rio campus, with the exception of outdated materials.

One additional extrinsic factor has been identified as contributing to the success and motivation of the Del Rio students. They are excited and feel part of the innovative teaching techniques employed on their campus. These techniques have allowed students to review lecture material for further clarification. We feel the results of the independent study conducted by Howard College reflect the success of this technique. (Refer to Attachment I, Table I and the Accompanying Graph).

(3) Identify the potential for communication problems between the main campus and the extended campus.

As identified in the foregoing narrative, communication problems were minimized between faculty and students as a result of the procedures used to accomplish objectives. Weekly faculty-student conferences, via the teleconference

system, incorporating all aspects of the curriculum as well as student progress, minimized the potential for communication problems.

(4) Utilize appropriate community health care agencies for assistance in providing students with adequate clinical experiences:

Health Care agencies in Del Rio were selected on the basis of providing the students in Del Rio an opportunity to meet nursing course objectives. In addition, only accredited agencies meeting the guidelines as set forth by the Board of Nurse Examiners for the State of Texas were selected. Each agency was visited and required data sheets were obtained prior to selection of that facility for clinical experiences. Affiliation agreements were signed by administrators from the respective clinical agencies and administrators from Howard College. Agencies were contacted and visited one year prior to implementation of the nursing program.

During the first year of operation, clinical objectives were achieved for students on the Del Rio campus through the use of two clinical agencies:

1. Val Verde Memorial Hospital
2. Del Rio Nursing Home, Inc.

The foregoing clinical agencies allowed the students to meet clinical objectives in Level I and Level II of the nursing program.

The Board of Nurse Examiners for the State of Texas requires all clinical resources to provide "a sufficient number and variety of patients/clients to provide learning experiences for all students to achieve the stated objectives" in all courses. In order to meet this criterion, arrangements were made, prior to accepting the first class of students, for a portion of Level III clinical experiences to be obtained outside of Del Rio. This was accomplished in the following manner:

Block lectures in psychiatric nursing (Level III course) were offered on the Del Rio campus, via the audio-visual cassettes, prior to the students being scheduled in the clinical setting at Big Spring State Hospital, a psychiatric facility. The psychiatric theory was provided on the Del Rio campus, prior to the clinical experiences in Big Spring, to limit the time students would be required to be away from families as well as to limit expenses. Students lived in dorms on the Howard College campus. Both Howard College and Del Rio campus students participated in the psychiatric clinical affiliation simultaneously at Big Spring State Hospital.

A psychiatric teaching consultant was employed on the Del Rio campus to facilitate two weeks of theory lectures and conduct the simulated lab experiences. Dr. John Lantz, from the University of Texas at El Paso College of Nursing

was employed as the Psychiatric instructor for the Del Rio students. His years of experience as a psychiatric clinician, in addition to his psychiatric nursing major, enhanced the learning experience for students in psychiatric nursing.

In addition to meeting clinical objectives for psychiatric nursing, the students had an opportunity to personally interact with faculty on the Big Spring campus. This factor also contributed to identity with the main campus at Big Spring.

Pediatric experiences are also limited in the community of Del Rio. In order for students to obtain adequate experiences with sick children (Pediatric Nursing), the students will spend one week at The Children's Hospital (Santa Rosa Medical Center), San Antonio, Texas. Students will also affiliate at Laughlin Air Force Base, Del Rio, for an observational experience with Pediatric and Maternal/child nurse practitioners. Obstetrical clinical experiences will be obtained at Val Verde Memorial Hospital, Del Rio.

(5) Examine the critical importance of negotiation/compromise, and alternative plans between the two campuses to ensure continued success:

In retrospect, the first year of operation provided a number of opportunities for negotiation and compromise critical to the operation of the Associate Degree Nursing Program. A new administrator was hired at Val Verde Memorial Hospital in addition to a new Vice President at Howard College.

The change in both of the administrations resulted in some minor communication problems.

However, the differences were negotiated through a series of meetings consisting of representatives from both campuses. A new contract thoroughly delineating the responsibilities of Howard College and Val Verde Memorial Hospital is currently being written. This open communication and willingness to compromise should ensure the continued success of the extended campus in Del Rio.

PROJECT EVALUATION AND SPECIFIC RESULTS PRODUCED

In order to evaluate the success of the Associate Degree Nursing Program during its first year of operation, a study was conducted at Howard College to compare the two groups of students. The Watson-Glasser test, one of the pre-entrance tests, was used as a basis for this comparison. In addition, the NLN achievement tests administered during the first year of operation of the program were used. The attached narrative, chart, and graph show no significant differences in the performance of students on the Big Spring and Del Rio campuses. (Refer to attachment #1). It is possible to provide a high quality educational program, with the distances involved, through the use of audiovisual components.

Attrition rate on the Del Rio campus is 22% compared to 52% on the Big Spring campus for the 1982-1983 academic year. However, many variables affected the attrition rate, on both campuses. Eighteen students were admitted into the Associate Degree Nursing Program at Del Rio. It is anticipated that fourteen students will graduate in May, 1984.

The Associate Degree Nursing Program, on the Del Rio campus has been approved for twenty students. Twenty-three applications have been received for fall, 1983.

Further evaluation will consist of a study to be con-

ducted following the national licensure examination (NCLEX-RN). Students on the Del Rio campus will write the national examination initially in July 1984.

This special cooperative arrangement is providing students in the Middle Rio Grande Valley an opportunity to pursue needed educational development without traveling many miles away from their homes. Thus, equal educational opportunity is being provided for those living in less populated areas of Texas such as Del Rio, Eagle Pass, and Uvalde. In addition, the people of the rural areas of Kinney and other counties have access to the Associate Degree Nursing Program in Del Rio.

Potential Utilization of Results

Howard College will have an opportunity to utilize the same basic procedures used in Del Rio, in Snyder, Texas, a rural community located forty-eight miles east of Big Spring. An extended campus of the Associate Degree Nursing Program will admit the first class of students in August, 1983. We feel that based on the success of the Del Rio extended campus, that the remote, extended campus may be duplicated elsewhere.

Additionally, students on all campuses will have available for continous review, all major lectures produced for the Howard College Associate Degree Nursing Program. A complete listing of all major lectures produced using the ½" beta format has been included with this comprehensive

final report. (Refer to attachment #2). As an addendum to this comprehensive final report, a complete library of audiovisual cassette tapes has been produced and mailed to the Texas Education Agency.

STATISTICAL METHODS USED TO STUDY THE DIFFERENCE IN THE MEANS BETWEEN SCORES ON THE NLN (8 CATEGORIES) AND WATSON-GLASSER CRITICAL THINKING ANALYSIS FOR THE 1ST YEAR ADN STUDENTS FROM THE BIG SPRING CAMPUS AND THE DEL RIO CAMPUS:

The Statistical method of the t-test was used to determine the significance of difference between the two means on each subject category. (An indicator of difference.)

Statistical Significance is defined at the .05 and .01 level or that the observed difference between the two means is greater than pure chance would allow. Example: 95 or 99 times out of every 100 times tested, the results would be the same.

To determine the appropriate t-test, 3 questions were asked:

(1) Is there a positive correlation between the data contained between the two groups?

(2) Is there a significant difference between the variances of the two groups?

(3) Are the two groups equal in size?

Note: The Watson-Glasser scores were analyzed to determine if there was a significant difference between the two groups to begin with. This proved the groups had no significant differences between the means on this test.

To determine the appropriate t-test, on the categories #1, 3, 4, 5, 6, 7, 8, and the Watson-Glasser, it was determined that the POOLED VARIANCE TECHNIQUE was appropriate.

Reasons:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\Sigma x_1^2 + \Sigma x_2^2}{n_1 + n_2 - 2}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

(A) The two sample sizes were not equal, and no significant difference existed between the two sample variances;

and

(B) The data were uncorrelated.

In the category Anatomy and Physiology, the SEPARATE VARIANCE TECHNIQUE was appropriate.

The reason was that the two sample sizes were not equal and a significant difference exists between the two sample variances.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

All categories proved to be below the table values for significance, therefore accepting the Null hypothesis that there are no significant differences between the means for Big Spring and Del Rio ADN students on the NLN tests or the Watson-Glasser.

To determine whether a significant relationship between the variances existed, an F test was used.

$$F = \frac{S_1^2}{S_2^2}$$

S_1^2 = greater variance

S_2^2 = lesser variance

Reference: Cornett, Joe D. and Beckner, Weldon. Introductory Statistics for the Behavioral Sciences. Copyright 1975, Charles E. Merrill Publishing Company.

GRAPH

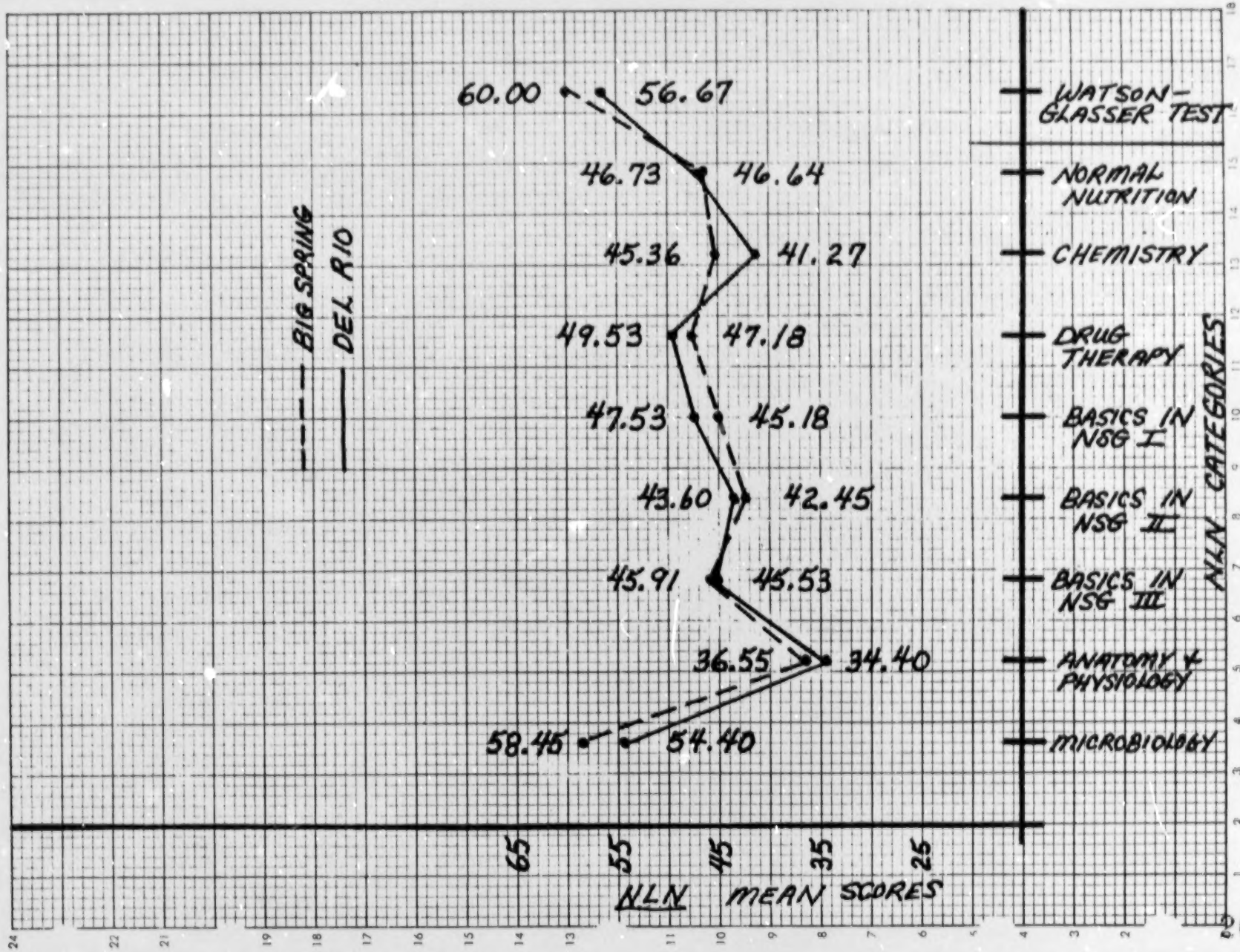
BIG SPRING
DEL RIO
60.00
56.67
46.73
46.64
45.36
41.27
49.53
47.18
47.53
45.18
43.60
42.45
45.91
45.53
36.55
34.40
58.45
54.40
WATSON-GLASSER TEST
NORMAL NUTRITION
CHEMISTRY
DRUG THERAPY
BASICS IN NSG I
BASICS IN NSG II
BASICS IN NSG III
ANATOMY & PHYSIOLOGY
MICROBIOLOGY
NLN CATEGORIES
65
55
45
35
25
NLN MEAN SCORES

Table 1

Based on NLN Raw Scores

NLN TEST COMPARISON BETWEEN

BIG SPRING (BS) AND DEL RIO (DR) ADN STUDENTS

VARIABLE (NLN) (TEST)	GROUP	N *	$\bar{X}$ MEAN	t VALUE	REMARKS
1. MICROBIOLOGY	DR	15	54.4		No Significant Difference
	BS	11	58.45	-.60916	
2. ANATOMY AND PHYSIOLOGY	DR	15	34.4		No Significant Difference (.05)-2.145 (.01)-2.977
	BS	11	36.545	-.37306	
3. BASICS IN NSG III	DR	15	45.53		No Significant Difference
	BS	11	45.909	-.17595	
4. BASICS IN NSG. II	DR	15	43.6		No Significant Difference
	BS	11	42.454	.59119	
5. BASICS IN NSG. I	DR	15	47.53		No Significant Difference
	BS	11	45.1818	.01289	
6. DRUG THERAPY	DR	15	49.53		No Significant Difference
	BS	11	47.18	.59682	
7. CHEMISTRY	DR	15	41.267		No Significant Difference
	BS	11	45.363	.57609	
8. NORMAL NUTRITION	DR	15	46.73		No Significant Difference
	BS	11	46.636	.01795	
9.					
10. WATSON-GLASSER TEST	DR	15	56.667		No Significant Difference
	BS	11	60.00	.8943485	
11. FOR ALL CATEGORIES EXCEPT ANATOMY AND PHYSIOLOGY, TABLE VALUE FOR SIGNIFICANT DIFFERENCE					(.05)-2.064 (.01)-2.797
12. * The negative t value is on a Null hypothesis - two tailed test, and has the same value as a positive t value					
*ONLY STUDENTS WHO COMPLETED ALL NLN TESTS WERE INCLUDED PROGRAM DROP-OUTS WERE EXCLUDED					

ASSOCIATE DEGREE NURSING - FILMS

FUNDAMENTALS OF NURSING 1600

LESSON I & II COMMUNICATION

LESSON III, IV, & V CONCEPT-CLIENT-LIFE PROCESS

LESSON IV & VII-CONCEPT STRESS-TECHNICAL SKILLS

LESSON IX, X, & XI ENVIRONMENT-NURSING PROCESS-ACCOUNTABILITY

LESSON XII, XIII, IXV-PROCESS-PLANNING-IMPLEMENTATION-EVALUATION-PAIN

LESSON XV, XVI INFLAMATION-AGING

LESSON XVII, XVIII BODY IMAGE, GRIEVING

LESSON IXX, XX NEOPLASTIC PROCESS-SLEEP SENSORY DISTURBANCE

LESSON XXI, XXII CONCEPT SEXUALITY, SHOCK

LESSON VIII-PART I & II RESPONSES TO STRESS

MEDICAL-SURGICAL NURSING I 1800

LESSON I & II SURGICAL

LESSON II RESPIRATORY SYSTEM

LESSON III PART III-RESPIRATORY SYSTEM

LESSON IV G-I TRACT PART I & II

LESSON V CARDIO-VASCULAR SYSTEM - PART I

LESSON V CARDIO-VASCULAR SYSTEM - PART II & III

LESSON VI & VII NURSING PROCESS-PARASYMPATHETIC NERVOUS SYSTEM & GENITO-URINARY & REPRODUCTIVE DISORDER PART I

LESSON VI, VII GENITO-URINARY & REPRODUCTIVE DISORDER PART II

LESSON VII INTEGUMENTARY & ALLERGIC DISORDER PART I & II

LESSON IX NURSING PROCESS ENDOCRINE SYSTEM

LESSON X EYE & EAR DISORDER PART I & II

LESSON XI THE ENDOCRINE SYSTEM

LESSON XII THE NERVOUS SYSTEM

LESSON IVX NERVOUS SYSTEM PART I & II

LESSON IVX NERVOUS SYSTEM PART III

Films - Continued

OBSTETRICAL NURSING 2601

LESSON I I.V. THERAPY

LESSON II FAMILY COUNSELING

LESSON III MEDICATIONS IN OB PART I & II

LESSON IV MATERNAL ASSESSMENT PART I

LESSON IV MATERNAL ASSESSMENT PART II

LESSON VI & VII SUPPORT DURING LABOR-FETAL MONITORING

LESSON IX INTRAPARTAL ASSESSMENT PART I, II & III

LESSON X ACCOUNTABILITY

LESSON XI POSTPARTUM PERIOD PART I

LESSON XI POSTPARTUM PERIOD PART II

LESSON XI POSTPARTUM PERIOD PART III

LESSON XII NEWBORN PART I & II

LESSON XIII NEONATAL PERIOD PART I & II

LESSON XIII NEONATAL PERIOD PART III

PSYCHIATRIC NURSING 2600

LESSON I THEORY OF MENTAL DISORDERS - NURSING PROCESS PART I & II

LESSON I THEORY OF MENTAL DISORDERS - NURSING PROCESS PSYCHOLOGY PART III & IV

LESSON II NURSING PROCESS PSYCHOLOGY PART I

LESSON II ANXIETY PART II & III

LESSON III BEHAVIOR-SCHIZOPHRENIA

LESSON IV PSYCHOLOGY PART I

LESSON VI EXISTENTIALISM

LESSON VII ANTISOCIAL PERSONALITY

LESSON VIII FEELING OF WORTHLESSNESS

LESSON IX PROBLEM SENESCENSE

LESSON X INSATIABLE LONGINGS

Films - Continued

PEDIATRIC NURSING 2602

LESSON IV PLAY TIME PART I

LESSON IV PLAY TIME PART II

LESSON VI NURSING PROCESS: INFANT

LESSON IX SCHOOL AGE CHILD & ADOLESCENT

LESSON X HEALTH PROBLEMS IN MIDDLE CHILDHOOD & ADOLESCENCE

LESSON XI HANDICAPPED CHILD

LESSON XII THE RESPIRATORY SYSTEM

LESSON XIII NURSING PROCESS-GI

LESSON XVI VARIATIONS IN NURSING INTERVENTION

LESSON XVII INTEGRITY

MEDICAL-SURGICAL NURSING II 2800

LESSON I ICU NURSING, PART I-V

LESSON II RESPIRATORY & CARDIAC ASSESSMENT PART II

LESSON II RESPIRATORY & CARDIAC ASSESSMENT PART III

LESSON III RESPIRATORY & CARDIAC ASSESSMENT PART IV & V

LESSON II RESPIRATORY & CARDIAC ASSESSMENT PART VI

LESSON IV TEACHING & PLANNING ICU UNIT

LESSON V CARDIAC INSULT PART I

LESSON V CARDIAC INSULT PART II

LESSON V CARDIAC INSULT PART III

LESSON VII HEMORRHAGE-SHOCK PART I

LESSON VII HEMORRHAGE-SHOCK PART II

LESSON VIII FLUID-ELECTROLYTES-BLOOD GASES

LESSON X CNS INSULT PART I & II

LESSON XI CNS INSULT PART I & II

LESSON XII CNS INSULT PART I, II & III

LESSON XIII PHYSICAL ASSESSMENT PART I-IV